

The vast nuclear infrastructure and expertise available at INL is ideal for creating, testing, and validating nuclear safeguards and security measures.



## International Nuclear Safeguards and Security

In 2006, news accounts across the world detailed the mysterious death of Alexander Litvinenko, a former Russian intelligence officer believed to have been poisoned by the radioactive material polonium-210. The details surrounding this unsolved case demonstrate how even a small amount of radioactive material that is stolen or diverted from its intended location can have serious implications for countries concerned about nuclear materials proliferation.

It also demonstrated the important and evolving role that

nonproliferation and security experts play in developing technology, policy, and systems for safeguarding and securing nuclear materials and facilities. Nowhere is this work more evident than at the nation's national laboratories.

Idaho National Laboratory (INL) has been a leader in the nuclear field for more than 60 years. In fact, we've safely designed, built, and operated 52 different and unique reactors. Our engineers have created detection technology and safeguards and security recommendations for worldwide application.

Now, we're working toward a future where nuclear facilities will be designed to be more efficient and effective at safeguards and protection.

Today, INL researchers are leading a new safeguards effort that applies the simultaneous action of technology, policies, and accountability procedures to intrinsically protect nuclear facilities.

### **Safeguards by Design**

Nuclear facilities have traditionally relied on after-the-fact security like armed security guards, weapons systems, monitoring devices, delay

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The Energy of Innovation



**INL supports international safeguards programs sponsored by NNSA and the IAEA.**



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### For more information

**Mark Schanfein**  
(208) 526-7002  
[mark.schanfein@inl.gov](mailto:mark.schanfein@inl.gov)  
[www.inl.gov](http://www.inl.gov)

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barriers, and denial systems. But increasingly, these add-on protective measures have become more costly to protect against modern threats.

Now, INL is leading a Department of Energy initiative to ensure the timely, efficient, and cost-effective integration of safeguards and security measures. The lab's seven-step approach aims to fundamentally change how security is implemented by designing in security features in the early design phases and continually assessing needs through the life cycle of the facility.

This approach requires an understanding of security requirements, nuclear facility design, emerging technology, costs, risk management, and communication. In all of these

areas, INL has excelled for more than 60 years. And today, this Safeguards and Security by Design process has become part of an international movement that includes the International Atomic Energy Agency (IAEA), its member states, and the nuclear industry.

### **Nuclear Security**

INL is also seeking improvements to methods that evaluate nuclear security risk, threats, and consequences. Risk-informed physical protection adds a scientific approach to security by considering the likelihood of success of a terrorist attack together with the consequences. This data provides an objective risk-informed management approach that is consistent at every facility and allows both human and technology resources to be used effectively

while stabilizing costs. It also ensures that security decisions at facilities are based on the best information available and therefore are better protected.

And while developing a theoretical approach to safeguards and security sounds easy, implementing it in the field adds many more dimensions and challenges. That's why INL works to implement improved physical security protection through several programs funded by the National Nuclear Security Administration (NNSA). For instance, we operate a Center of Excellence for vulnerability assessments. The center has created a standard method for conducting physical protection assessments and provides training and on-site assistance at dozens of DOE facilities housing critical materials and technology.

We support initiatives between the IAEA, U.S., and Russia to develop an international verification method for fissile material. We also support Material Protection Control and Accountability programs designed to prevent the theft or loss of nuclear materials at international locations.

### Quick Facts

- INL is the nation's nuclear energy laboratory and has a leading role in nonproliferation.
- Our work in nuclear energy systems, safety, and nonproliferation has been demonstrated internationally.
- Numerous INL programs are working to secure the nuclear fuel cycle through advanced science, training, and leadership.
- The lab employs hundreds of experts in nuclear engineering, operations, and safeguards.
- Our facilities include reactors, hot cells, analytical labs, fuel processing areas, and a dedicated international materials protection, control, and accountability training center.